

III. AMENDMENTS TO CLAIMS – CLAIM LISTING

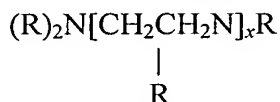
The following listing of claims will replace all prior versions and listing of claims in the present application:

1. (Previously Presented) A strength improvement admixture composition comprising:
 - a. polycarboxylate dispersant;
 - b. set retarder; and
 - c. a strength improvement additive selected from the group consisting of poly(hydroxyalkylated)polyethyleneamines, poly(hydroxyalkylated)polyethylenepolyamines, poly(hydroxyalkylated)polyethyleneimines, poly(hydroxyalkylated)polyamines, hydrazines, 1,2-diaminopropane, polyglycoldiamine, poly(hydroxyalkyl)amines and mixtures thereof;wherein the amount of polycarboxylate dispersant is from about 5% to about 80%, the set retarder is from about 0.5% to about 40%, and the strength improvement additive is from about 0.5% to about 40% based on the total dry weight of the admixture composition components.
2. (Cancelled).
3. (Original) The admixture composition of claim 1, wherein the amount of polycarboxylate dispersant is from about 20% to about 60%, the set retarder is from about 2% to about 25%, and the strength improvement additive is from about 2% to about 25% based on the total dry weight of the admixture composition components.
4. (Withdrawn) The admixture composition of claim 1, wherein the strength improvement additive is selected from the group consisting of di(hydroxyethyl)1,2-diaminopropane, tetra(hydroxyethyl)1,2-diaminopropane, di(hydroxyethyl)hydrazine, tetra(hydroxyethyl)hydrazine, ethoxylated polyglycoldiamine, triisopropanolamine and mixtures thereof.

5. (Original) The admixture composition of claim 1, wherein the strength improvement additive is selected from the group consisting of N,N,N'-tri-(hydroxyethyl)ethylenediamine, N,N,N'-tri-(hydroxyethyl)diethylenediamine, N,N'-di-(hydroxyethyl)ethylenediamine, N,N'-bis(2-hydroxypropyl)diethylenetriamine, N,N,N',N'-tetra(hydroxyethyl)ethylenediamine, N,N,N',N',N''-penta(hydroxyethyl)diethylenetriamine, N,N'-bis(2-hydroxypropyl)-N,N,N'-tri(hydroxyethyl)diethylenetriamine, and mixtures thereof.

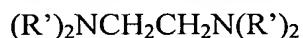
6. (Original) The admixture composition of claim 1, wherein the strength improvement additive comprises poly(hydroxyethyl)polyethyleneimine.

7. (Original) The admixture composition of claim 1, wherein the strength improvement additive comprises poly(hydroxyalkylated)polyethyleneamine having the following formula:



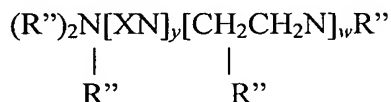
wherein x is 1,2 or 3 and R is selected from the group consisting of hydrogen, 2-hydroxyethyl, and 2-hydroxypropyl, each R can be the same or different, and at least 40% of the R groups are hydroxyalkyl, with no more than 40% of the R groups being hydroxypropyl.

8. (Original) The admixture composition of claim 1, wherein the strength improvement additive has the following formula:

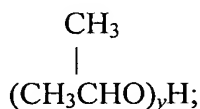


wherein R' is $(CH_2CH_2O)_yH$, wherein y is 0, 1 or 2, wherein no more than one-half (1/2) of the compounds of the formula have y equal to 0, and each R' can be the same or different.

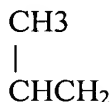
9. (Original) The admixture composition of claim 1, wherein the strength improvement additive has the following formula:



wherein R'' is selected from the group consisting of (CH₂CH₂O)_yH and



wherein X is a covalent bond or a divalent organic radical selected from the group consisting of CH₂, CH₂CH₂,

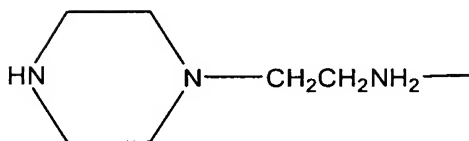


and CH₂CH₂CH₂OCH₂CH₂OCH₂CH₂OCH₂CH₂CH₂; wherein y and v are 0, 1 or 2;

wherein w is 0 or 1;

wherein v and w cannot both be 0; and wherein no more than one-half (1/2) of the R'' groups are hydrogen.

10. (Withdrawn) The admixture composition of claim 1, wherein the strength improvement additive comprises Ethoxylated Amine HH, having a typical analysis of:



aminoethyl piperazine:	50% to 70% by weight
triethylene tetramine :	40% maximum by weight
others:	balance.

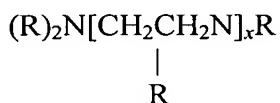
11. (Withdrawn) The admixture composition of claim 1, wherein the strength improvement additive has the following formula:
 $(R^3)_nH_qN$
wherein R^3 is $[(CHR^4)_m(CHR^4)O]_pH$;
wherein R^4 is independently H or CH_3 ;
wherein $m = 1$ or 2 ;
wherein $n = 2$ or 3 ;
wherein $p = 1$ or 2 ;
wherein $q = 3-n$
and each R^3 can be the same or different.
12. (Currently Amended) The admixture composition of claim 1 wherein the set retarder is selected from the group consisting of an oxy-boron compound, a polyphosphonic acid, lignosulfonates, sulphonie acid-acrylic acid copolymer, and their corresponding salts, carboxylic acid, [a] hydroxycarboxylic acid, polycarboxylic acid, hydroxylated carboxylic acid, fumaric, itaconic, malonic, borax, gluconic, and tartaric acid, lignosulfonates, ascorbic acid, isoascorbic acid, sulphonie acid-acrylic acid copolymer, and their corresponding salts, a carboxylic acid, polyhydroxysilane, polyacrylamide, carbohydrates and mixtures thereof.
13. (Original) The admixture composition of claim 1 further comprising at least one of set accelerators, air detrainning agents, air entraining agents, shrinkage reducing admixtures, water reducers, foaming agents, dampproofing admixtures, pumping aids, fungicidal admixtures, insecticidal admixtures, germicidal admixtures, alkali activity reducers, bonding admixtures, corrosion inhibitors, and pigments.
14. (Original) The admixture composition of claim 1, wherein the admixture composition is in an aqueous solution.

15. (Previously Presented) A cementitious composition comprising hydraulic cement and a strength improvement admixture composition, said admixture composition comprising:
- polycarboxylate dispersant;
 - set retarder; and
 - a strength improvement additive selected from the group consisting of a poly(hydroxyalkylated)polyethyleneamines, poly(hydroxyalkylated)polyethylenepolyamines, poly(hydroxyalkylated)polyethyleneimines, poly(hydroxyalkylated)polyamines, hydrazines, 1,2-diaminopropane, polyglycoldiamine, poly(hydroxyalkyl)amines and mixtures thereof;
- wherein the amount of polycarboxylate dispersant is from about 5% to about 80%, the set retarder is from about 0.5% to about 40%, and the strength improvement additive is from about 0.5% to about 40% based on the total dry weight of the admixture composition components.
16. (Original) The cementitious composition of claim 15, wherein the amount of polycarboxylate dispersant is from about 0.02% to about 2%, the set retarder is from about 0.002% to about 0.2%, the strength improvement additive is from about 0.0001% to about 0.2% by weight of cementitious binder.
17. (Original) The cementitious composition of claim 15, wherein the amount of polycarboxylate dispersant is from about 0.02% to about 0.24%, the set retarder is from about 0.005% to about 0.08%, the strength improvement additive is from about 0.004% to about 0.08% by weight of cementitious binder.
18. (Withdrawn) The cementitious composition of claim 15, wherein the strength improvement additive is selected from the group consisting of di(hydroxyethyl)1,2-diaminopropane, tetra(hydroxyethyl)1,2-diaminopropane, di(hydroxyethyl)hydrazine, tetra(hydroxyethyl)hydrazine, ethoxylated polyglycoldiamine, triisopropanolamine and mixtures thereof.

19. (Original) The cementitious composition of claim 15, wherein the strength improvement additive is selected from the group consisting of N,N,N'-tri-(hydroxyethyl)ethylenediamine, N,N,N'-tri-(hydroxyethyl)diethylenediamine, N,N'-di-(hydroxyethyl)ethylenediamine, N,N'-bis(2-hydroxypropyl)diethylenetriamine, N,N,N',N'-tetra(hydroxyethyl)ethylenediamine, N,N,N',N',N''-penta(hydroxyethyl)diethylenetriamine, N,N'-bis(2-hydroxypropyl)-N,N,N'-tri(hydroxyethyl)diethylenetriamine, and mixtures thereof.

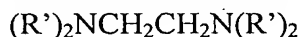
20. (Original) The cementitious composition of claim 15, wherein the strength improvement additive comprises poly(hydroxyethyl)polyethyleneimine.

21. (Original) The cementitious composition of claim 15, wherein the strength improvement additive comprises poly(hydroxyalkylated)polyethyleneamine having the following formula:



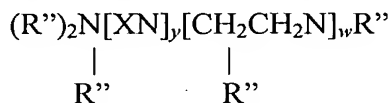
wherein x is 1,2 or 3 and R is selected from the group consisting of hydrogen, 2-hydroxyethyl, and 2-hydroxypropyl, each R can be the same or different, and at least 40% of the R groups are hydroxyalkyl, with no more than 40% of the R groups being hydroxypropyl.

22. (Original) The cementitious composition of claim 15, wherein the strength improvement additive has the following formula:

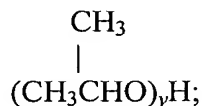


wherein R' is (CH₂CH₂O)_yH, wherein y is 0, 1 or 2, wherein no more than one-half (1/2) of the compounds of the formula have y equal to 0, and each R' can be the same or different.

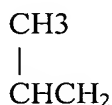
23. (Original) The cementitious composition of claim 15, wherein the strength improvement additive has the following formula:



wherein R'' is selected from the group consisting of (CH₂CH₂O)_yH and



wherein X is a covalent bond or a divalent organic radical selected from the group consisting of CH₂, CH₂CH₂,

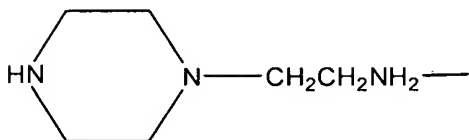


and CH₂CH₂CH₂OCH₂CH₂OCH₂CH₂OCH₂CH₂CH₂; wherein y and v are 0, 1 or 2;

wherein w is 0 or 1;

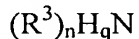
wherein v and w cannot both be 0; and wherein no more than one-half (1/2) of the R'' groups are hydrogen.

24. (Withdrawn) The cementitious composition of claim 15, wherein the strength improvement additive comprises Ethoxylated Amine HH, having a typical analysis of:



aminoethyl piperazine:	50% to 70% by weight
triethylene tetramine :	40% maximum by weight
others:	balance.

25. (Withdrawn) The cementitious composition of claim 15, wherein the strength improvement additive has the following formula:



Wherein R^3 is $[(CHR^4)_m (CHR^4)O]_pH$;

wherein R^4 is independently H or CH_3 ;

wherein $m = 1$ or 2 ;

wherein $n = 2$ or 3 ;

wherein $p = 1$ or 2 ;

wherein $q = 3-n$;

and each R^3 can be the same or different.

26. (Currently Amended) The cementitious composition of claim 15 wherein the set retarder is selected from the group consisting of an oxy-boron compound, a polyphosphonic acid, lignosulfonates, sulphonc acid-acrylic acid copolymer, and their corresponding salts, carboxylic acid, [a] hydroxycarboxylic acid, polycarboxylic acid, hydroxylated carboxylic acid, fumaric, itaconic, malonic, borax, gluconic, and tartaric acid, lignosulfonates, ascorbic acid, isoascorbic acid, sulphonc acid-acrylic acid copolymer, and their corresponding salts, a carboxylic acid, polyhydroxysilane, polyacrylamide, carbohydrates and mixtures thereof.

27. (Original) The cementitious composition of claim 15, wherein the cement is selected from the group consisting of portland cement, modified portland cement, or masonry cement, and mixtures thereof.

28. (Original) The cementitious composition of claim 15 wherein the hydraulic cement is portland cement.

- $$\begin{array}{c} \text{COOX} \\ | \\ (\text{CH}_2)_m \\ | \\ \left(\text{NH}-\text{CH}-\text{(CH}_2\text{)}_n-\overset{\text{O}}{\parallel}\text{C} \right)_a \\ | \\ \text{O} \end{array} \quad \begin{array}{c} \text{O} \\ || \\ \text{C}-\text{Q}-(\text{R})_p\text{R}_1 \\ | \\ (\text{CH}_2)_{m'} \\ | \\ \left(\text{NH}-\text{CH}-\text{(CH}_2\text{)}_{n'}-\overset{\text{O}}{\parallel}\text{C} \right)_b \\ | \\ \text{O} \end{array} \quad \begin{array}{c} \text{O} \\ || \\ \text{C}-\text{Q}-\text{Y} \\ | \\ (\text{CH}_2)_{m''} \\ | \\ \left(\text{NH}-\text{CH}-\text{(CH}_2\text{)}_{n''}-\overset{\text{O}}{\parallel}\text{C} \right)_c \\ | \\ \text{O} \end{array} \quad \begin{array}{c} \text{Z} \\ | \\ \text{O} \end{array}$$

X is at least one of hydrogen, an alkali earth metal ion, an alkaline earth metal ion, ammonium ion, or amine;

R is at least one of C₁ to C₆ alkyl(ene) ether or mixtures thereof or C₁ to C₆ alkyl(ene) imine or mixtures thereof;

Q is at least one of oxygen, NH, or sulfur;

p is a number from 1 to about 300 resulting in at least one of a linear side chain or branched side chain;

R₁ is at least one of hydrogen, C₁ to C₂₀ hydrocarbon, or functionalized hydrocarbon containing at least one of -OH, -COOH, an ester or amide derivative of -COOH, sulfonic acid, an ester or amide derivative of sulfonic acid; amine, or epoxy;

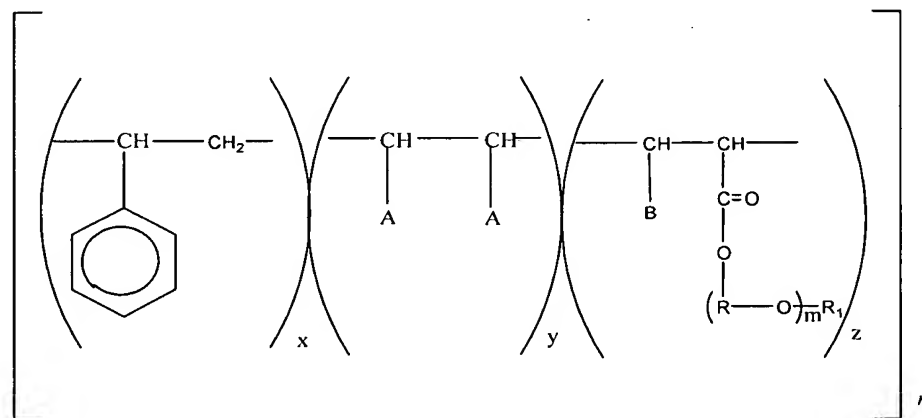
Y is at least one of hydrogen, an alkali earth metal ion, an alkaline earth metal ion, ammonium ion, amine, a hydrophobic hydrocarbon or polyalkylene oxide moiety that functions as a defoamer;

m, m', m'', n, n', and n'' are each independently 0 or an integer between 1 and about 20;

Z is a moiety containing at least one of i) at least one amine and one acid group, ii) two functional groups capable of incorporating into the backbone selected from the group consisting of dianhydrides, dialdehydes, and di-acid-chlorides, or iii) an imide residue; and

wherein a, b, c, and d reflect the mole fraction of each unit wherein the sum of a, b, c, and d equal one, wherein a, b, c, and d are each a value greater than or equal to zero and less than one, and at least two of a, b, c, and d are greater than zero;

b) a dispersant of Formula (II):



wherein in Formula (II):

A is COOM or optionally in the "y" structure an acid anhydride group (-CO-O-CO-) is formed in place of the A groups between the carbon atoms to which the A groups are bonded to form an anhydride;

B is COOM

M is hydrogen, a transition metal cation, the residue of a hydrophobic polyalkylene glycol or polysiloxane, an alkali metal ion, an alkaline earth metal ion, ferrous ion, aluminum ion, (alkanol)ammonium ion, or (alkyl)ammonium ion;

R is a C₂₋₆ alkylene radical;

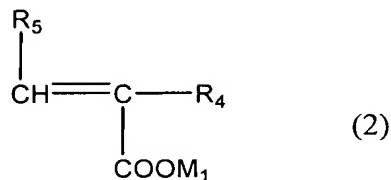
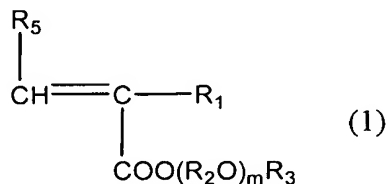
R₁ is a C₁₋₂₀ alkyl, C₆₋₉ cycloalkyl, or phenyl group;

x, y, and z are a number from 0.01 to 100;

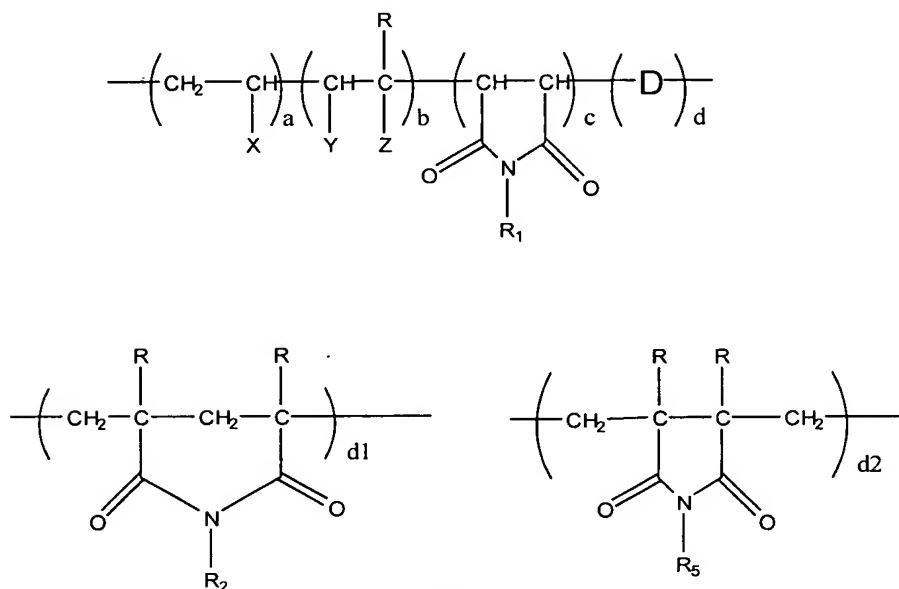
m is a number from 1 to 100; and

n is a number from 10 to 100;

- c) a dispersant comprising at least one polymer or a salt thereof having the form of a copolymer of
- i) a maleic anhydride half-ester with a compound of the formula RO(AO)_mH, wherein R is a C₁-C₂₀ alkyl group, A is a C₂₋₄ alkylene group, and m is an integer from 2-16; and
 - ii) a monomer having the formula CH₂=CHCH₂-(OA)_nOR, wherein n is an integer from 1-90 and R is a C₁₋₂₀ alkyl group;
- d) a dispersant obtained by copolymerizing 5 to 98% by weight of an (alkoxy)polyalkylene glycol mono(meth)acrylic ester monomer (a) represented by the following general formula (1):



- e) a graft polymer that is a polycarboxylic acid or a salt thereof, having side chains derived from at least one species selected from the group consisting of oligoalkyleneglycols, polyalcohols, polyoxyalkylene amines, and polyalkylene glycols;
- f) a dispersant of Formula (III):



wherein in Formula (III):

D = a component selected from the group consisting of the structure d1, the structure d2, and mixtures thereof;

X = H, CH₃, C₂ to C₆ Alkyl, Phenyl, p-Methyl Phenyl, or Sulfonated Phenyl;

Y = H or -COOM;

R = H or CH₃;

Z = H, -SO₃M, -PO₃M, -COOM, -O(CH₂)_nOR₃ where n= 2 to 6, -COOR₃, or -(CH₂)_nOR₃ where n = 0 to 6, -CONHR₃, -CONHC(CH₃)₂CH₂SO₃M, -COO(CH₂)_nOH where n= 2 to 6, or -O(CH₂)_nOR₄ wherein n = 2 to 6;

R₁, R₂, R₃, R₅ are each independently -(CHRCH₂O)_mR₄ random copolymer of oxyethylene units and oxypropylene units where m= 10 to 500 and wherein the amount of oxyethylene in the random copolymer is from about 60% to 100% and the amount of oxypropylene in the random copolymer is from 0% to about 40%;

R₄ = H, Methyl, C₂ to about C₆ Alkyl, or about C₆ to about C₁₀ aryl;

M = H, Alkali Metal, Alkaline Earth Metal, Ammonium, Amine, triethanol amine, Methyl, or C₂ to about C₆ Alkyl;

a = 0 to about 0.8;

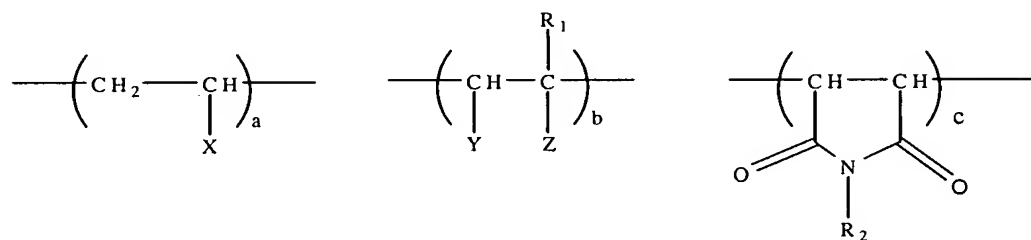
b = about 0.2 to about 1.0;

c = 0 to about 0.5;

d = 0 to about 0.5; and

wherein a, b, c, and d represent the mole fraction of each unit and the sum of a, b, c, and d is 1.0;

g) a dispersant of Formula (IV):



wherein in Formula (IV):

the "b" structure is one of a carboxylic acid monomer, an ethylenically unsaturated monomer, or maleic anhydride wherein an acid anhydride group (-CO-O-CO-) is formed in place of the groups Y and Z between the carbon atoms to which the groups Y and Z are bonded respectively, and the "b" structure must include at least one moiety with a pendant ester linkage and at least one moiety with a pendant amide linkage;

X = H, CH₃, C₂ to C₆ Alkyl, Phenyl, p-Methyl Phenyl, p-Ethyl Phenyl, Carboxylated Phenyl, or Sulfonated Phenyl;

Y = H, -COOM, -COOH, or W;

W = a hydrophobic defoamer represented by the formula R₅O-(CH₂CH₂O)_s-(CH₂C(CH₃)HO)_t-(CH₂CH₂O)_u where s, t, and u are integers from 0 to 200 with the proviso that t > (s+u) and wherein the total amount of hydrophobic defoamer is present in an amount less than about 10% by weight of the polycarboxylate dispersant;

Z = H, -COOM, -O(CH₂)_nOR₃ where n = 2 to 6, -COOR₃, -(CH₂)_nOR₃ where n = 0 to 6, or -CONHR₃;

R₁ = H, or CH₃;

R₂, R₃, are each independently a random copolymer of oxyethylene units and oxypropylene units of the general formula -(CH(R₁)CH₂O)_mR₄ where m=10 to 500 and wherein the amount of oxyethylene in the random copolymer is from about 60% to 100% and the amount of oxypropylene in the random copolymer is from 0% to about 40%;

R₄ = H, Methyl, or C₂ to C₈ Alkyl;

R₅ = C₁ to C₁₈ alkyl or C₆ to C₁₈ alkyl aryl;

M = Alkali Metal, Alkaline Earth Metal, Ammonia, Amine, monoethanol amine, diethanol amine, triethanol amine, morpholine, imidazole;

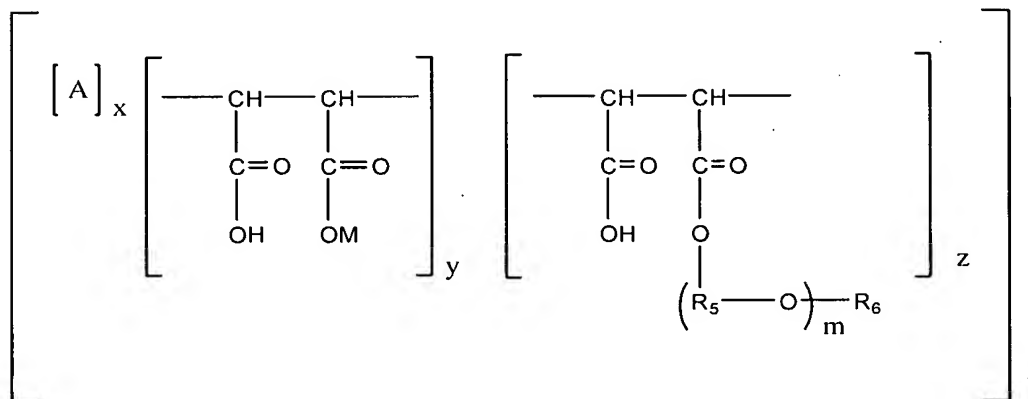
a = 0.01-0.8;

b = 0.2-0.99;

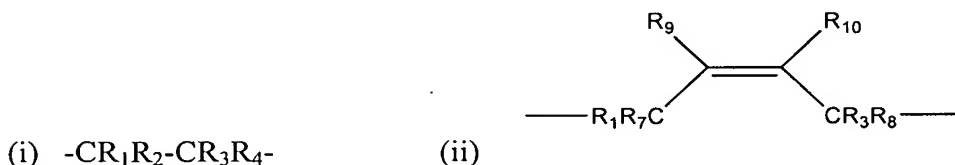
c = 0-0.5; and

wherein a, b, c represent the mole fraction of each unit and the sum of a, b, and c, is 1;

- h) a random copolymer corresponding to the following Formula (V) in free acid or salt form having the following monomer units and numbers of monomer units:



wherein A is selected from the moieties (i) or (ii)



wherein R_1 and R_3 are selected from substituted benzene, C_{1-8} alkyl, C_{2-8} alkenyl, C_{2-8} alkylcarbonyl, C_{1-8} alkoxy, carboxyl, hydrogen, and a ring, R_2 and R_4 are selected from the group consisting of hydrogen and C_{1-4} alkyl, wherein R_1 and R_3 can together with R_2 and/or R_4 when R_2 and/or R_4 are C_{1-4} alkyl form the ring;

R_7 , R_8 , R_9 , and R_{10} are individually selected from the group consisting of hydrogen, C_{1-6} alkyl, and a C_{2-8} hydrocarbon chain, wherein R_1 and R_3 together with R_7 and/or R_8 , R_9 , and R_{10} form the C_{2-8} hydrocarbon chain joining the carbon atoms to which they are attached, the hydrocarbon chain optionally having at least one anionic group, wherein the at least one anionic group is optionally sulfonic;

M is selected from the group consisting of hydrogen, and the residue of a hydrophobic polyalkylene glycol or a polysiloxane, with the proviso that when A is (ii) and M is the residue of a hydrophobic polyalkylene glycol, M must be different from the group $\text{---}(\text{R}_5\text{O})_m\text{R}_6\text{---}$;

R_5 is a C_{2-8} alkylene radical;

R_6 is selected from the group consisting of C_{1-20} alkyl, C_{6-9} cycloalkyl and phenyl;

n, x, and z are numbers from 1 to 100;

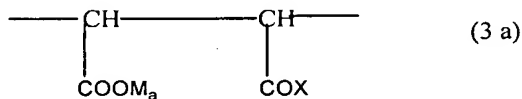
y is 0 to 100;

m is 2 to 1000;

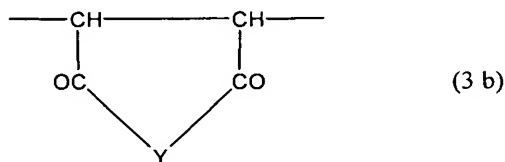
the ratio of x to (y+z) is from 1:10 to 10:1 and the ratio of y:z is from 5:1 to 1:100;

i) a copolymer of oxyalkyleneglycol-alkenyl ethers and unsaturated dicarboxylic acids, comprising:

i) 0 to 90 mol % of at least one component of the formula 3a or 3b:



or



wherein M is a hydrogen atom, a mono- or divalent metal cation, an ammonium ion or an organic amine residue, a is 1, or when M is a divalent metal cation a is $\frac{1}{2}$;

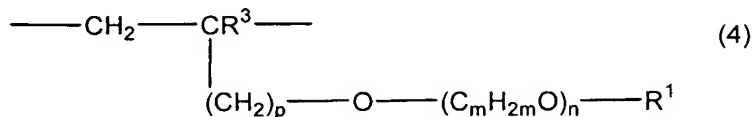
wherein X is $-\text{OM}_a$,

$-\text{O}-(\text{C}_m\text{H}_{2m}\text{O})_n-\text{R}^1$ in which R^1 is a hydrogen atom, an aliphatic hydrocarbon radical containing from 1 to 20 carbon atoms, a cycloaliphatic hydrocarbon radical containing 5 to 8 carbon atoms or an optionally hydroxyl, carboxyl, C_{1-14} alkyl, or sulphonic substituted aryl radical containing 6 to 14 carbon atoms, m is 2 to 4, and n is 0 to 100,

$-\text{NHR}_2$, $-\text{N}(\text{R}^2)_2$ or mixtures thereof in which $\text{R}^2=\text{R}^1$ or $-\text{CO}-\text{NH}_2$; and

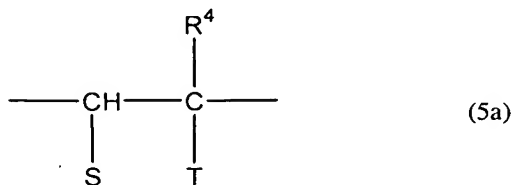
wherein Y is an oxygen atom or $-\text{NR}^2$;

ii) 1 to 89 mol% of components of the general formula 4:

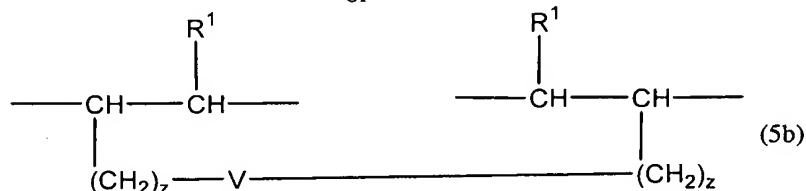


wherein R_3 is a hydrogen atom or an aliphatic hydrocarbon radical containing from 1 to 5 carbon atoms, p is 0 to 3, and R_1 is hydrogen, an aliphatic hydrocarbon radical containing from 1 to 20 carbon atoms, a cycloaliphatic hydrocarbon radical containing 5 to 8 carbon atoms or an optionally hydroxyl, carboxyl, C_{1-14} alkyl, or sulfonic substituted aryl radical containing 6 to 14 carbon atoms, m is 2 to 4, and n is 0 to 100, and

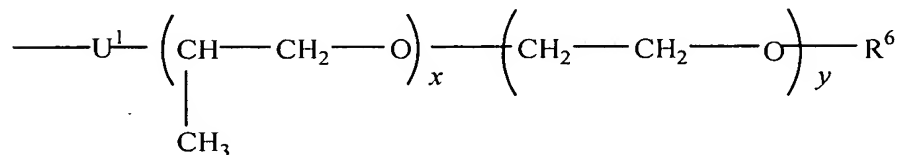
iii) 0.1 to 10 mol % of at least one component of the formula 5a or 5b:



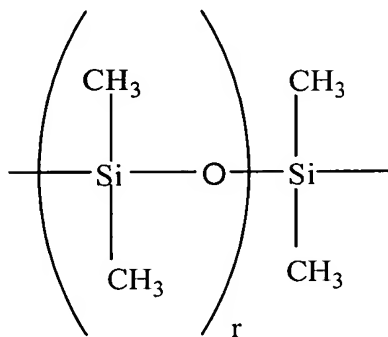
or



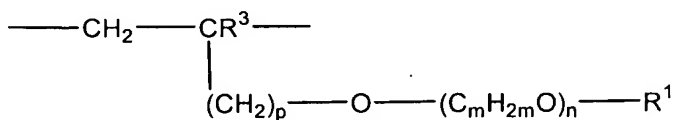
wherein S is a hydrogen atom or ---COOM_a or ---COOR_5 , T is ---COOR_5 , ---W-R_7 , $\text{---CO-[NH-(CH}_2\text{)}_3\text{]}_s\text{---W-R}_7$, $\text{---CO-O-(CH}_2\text{)}_z\text{---W-R}_7$, a radical of the general formula:



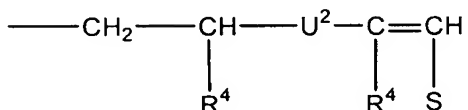
or $-(CH_2)_z-V-(CH_2)_z-CH=CH-R_1$, or when S is $-COOR_5$ or $-COOM_a$,
 U_1 is $-CO-NHM-$, $-O-$ or $-CH_2O$, U_2 is $-NH-CO-$, $-O-$ or $-OCH_2$, V is
 $-O-CO-C_6H_4-CO-O-$ or $-W-$, and W is



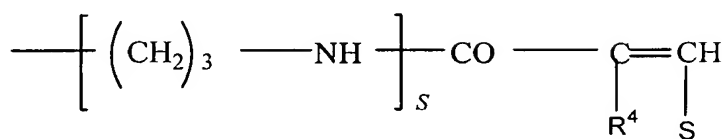
R_4 is a hydrogen atom or a methyl radical, R_5 is an aliphatic hydrocarbon radical containing 3 to 20 carbon atoms, a cycloaliphatic hydrocarbon radical containing 5 to 8 carbon atoms or an aryl radical containing 6 to 14 carbon atoms, $R_6=R_1$ or



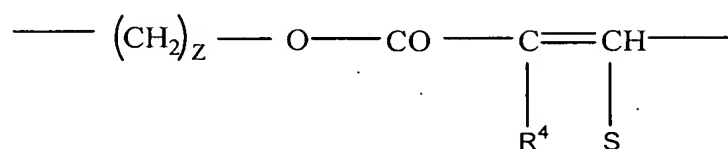
or



$R_7=R_1$ or

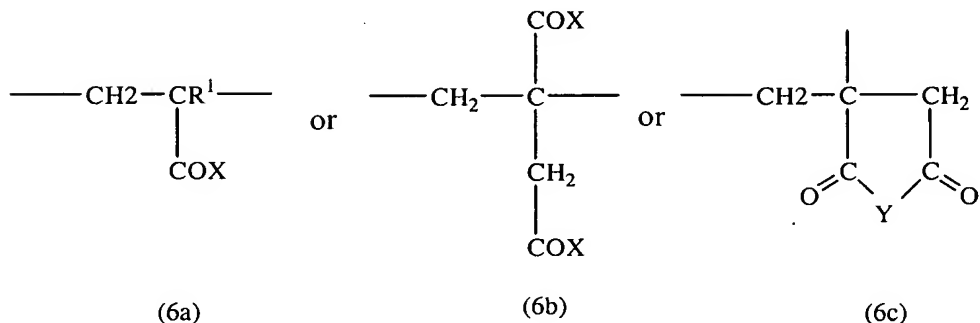


or



r is 2 to 100, s is 1 or 2, x is 1 to 150, y is 0 to 15 and z is 0 to 4;

iv) 0 to 90 mol % of at least one component of the formula 6a, 6b, or 6c:



wherein M is a hydrogen atom, a mono- or divalent metal cation, an ammonium ion or an organic amine residue, a is 1, or when M is a divalent metal cation a is ½;

wherein X is ---OM_a ,

$\text{---O---(C}_m\text{H}_{2m}\text{O)}_n\text{---R}^1$ in which R^1 is a hydrogen atom, an aliphatic hydrocarbon radical containing from 1 to 20 carbon atoms, a cycloaliphatic hydrocarbon radical containing 5 to 8 carbon atoms or an optionally hydroxyl, carboxyl, C_{1-14} alkyl, or sulphonic substituted aryl radical containing 6 to 14 carbon atoms, m is 2 to 4, and n is 0 to 100,

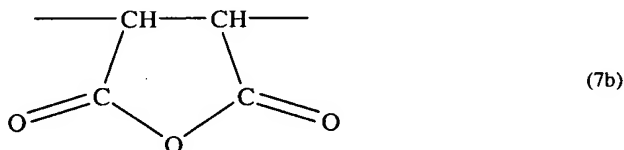
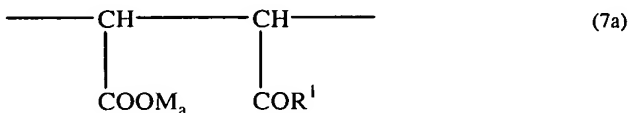
$\text{---NH---(C}_m\text{H}_{2m}\text{O)}_n\text{---R}^1$,

$-\text{NHR}_2, -\text{N}(\text{R}^2)_2$ or mixtures thereof in which $\text{R}^2 = \text{R}^1$ or
 $-\text{CO}-\text{NH}_2$; and

wherein Y is an oxygen atom or $-\text{NR}^2$;

j) a copolymer of dicarboxylic acid derivatives and oxyalkylene glycol-alkenyl ethers, comprising:

i) 1 to 90 mol.% of at least one member selected from the group consisting of structural units of formula 7a and formula 7b:



wherein M is H, a monovalent metal cation, a divalent metal cation, an ammonium ion or an organic amine;

a is $\frac{1}{2}$ when M is a divalent metal cation or 1 when M is a monovalent metal cation;

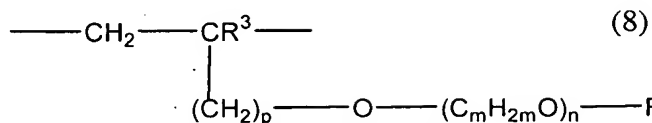
wherein R^1 is $-\text{OM}_a$, or

$-\text{O}-(\text{C}_m\text{H}_{2m}\text{O})_n-\text{R}^2$ wherein R^2 is H, a C_{1-20} aliphatic hydrocarbon, a C_{5-8} cycloaliphatic hydrocarbon, or a C_{6-14} aryl that is optionally substituted with at least one member selected from the group consisting of $-\text{COOM}_a$, $-(\text{SO}_3)\text{M}_a$, and $-(\text{PO}_3)\text{M}_{a2}$;

m is 2 to 4;

n is 1 to 200;

ii) 0.5 to 80 mol.% of the structural units of formula 8:



wherein R^3 is H or a C_{1-5} aliphatic hydrocarbon;

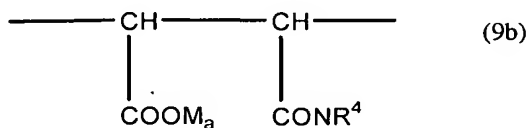
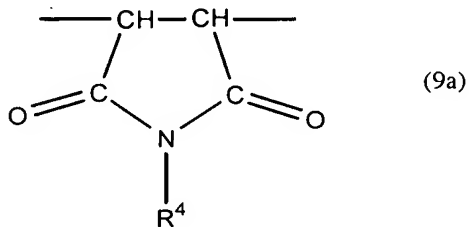
p is 0 to 3;

R^2 is H, a C_{1-20} aliphatic hydrocarbon, a C_{5-8} cycloaliphatic hydrocarbon, or a C_{6-14} aryl that is optionally substituted with at least one member selected from the group consisting of $-\text{COOM}_a$, $-(\text{SO}_3)\text{M}_a$, and $-(\text{PO}_3)\text{M}_{a2}$;

m is 2 to 4;

n is 1 to 200;

iii) 0.5 to 80 mol.% structural units selected from the group consisting of formula 9a and formula 9b:



wherein R^4 is H, C_{1-20} aliphatic hydrocarbon that is optionally substituted with at least one hydroxyl group, $-(\text{C}_m\text{H}_{2m}\text{O)}_n\text{---R}^2$, CO---NH---R^2 , C_{5-8} cycloaliphatic hydrocarbon, or a C_{6-14} aryl that is optionally substituted with at least one member selected from the group consisting of $-\text{COOM}_a$, $-(\text{SO}_3)\text{M}_a$, and $-(\text{PO}_3)\text{M}_{a2}$;

M is H, a monovalent metal cation, a divalent metal cation, an ammonium ion or an organic amine;

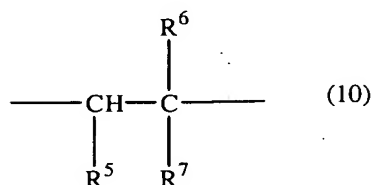
a is $\frac{1}{2}$ when M is a divalent metal cation or 1 when M is a monovalent metal cation;

R^2 is H, a C_{1-20} aliphatic hydrocarbon, a C_{5-8} cycloaliphatic hydrocarbon, or a C_{6-14} aryl that is optionally substituted with at least one member selected from the group consisting of $-\text{COOM}_a$, $-(\text{SO}_3)\text{M}_a$, and $-(\text{PO}_3)\text{M}_{a2}$;

m is 2 to 4;

n is 1 to 200;

iv) 1 to 90 mol.% of structural units of formula 10



wherein R^5 is methyl, or methylene group, wherein R^5 forms one or more 5 to 8 membered rings with R^7 ;

R^6 is H, methyl, or ethyl;

R^7 is H, a C_{1-20} aliphatic hydrocarbon, a C_{6-14} aryl that is optionally substituted with at least one member selected from the group consisting of $-\text{COOM}_a$, $-(\text{SO}_3)\text{M}_a$, and $-(\text{PO}_3)\text{M}_{a2}$, a C_{5-8} cycloaliphatic hydrocarbon, $-\text{OCOR}^4$, $-\text{OR}^4$, and $-\text{COOR}^4$, wherein R^4 is H, a C_{1-20} aliphatic hydrocarbon that is optionally substituted with at least one $-\text{OH}$, $-(\text{C}_m\text{H}_{2m}\text{O})_n\text{-R}^2$, $-\text{CO-NH-R}^2$, C_{5-8} cycloaliphatic hydrocarbon, or a C_{6-14} aryl residue that is optionally substituted with a member selected from the group consisting of $-\text{COOM}_a$, $-(\text{SO}_3)\text{M}_a$, and $-(\text{PO}_3)\text{M}_{a2}$.

Claims 33-50 (Cancelled).

IV. REMARKS

United States Serial No. 10/787,507, was filed on February 26, 2004. Claims 4, 10, 11, 18, 24 and 25 have been withdrawn from consideration. Claim 2 was cancelled by Applicants' Response B filed on September 27, 2006. Applicants have amended claims 12 and 26, and cancelled claims 33-50, by the present submission. In view of the amendments and remarks set forth herein, Applicants respectfully request reconsideration and allowance of claims 1, 3-32.

Amendments

The amendments to the specification and claims are the same as those filed by Applicants as part of Response C to the Final Office Action on January 31, 2007, and which were not entered in the application.

35 U.S.C. §102(b)

Claims 1-3, 5-9, 12-17, 19-23 and 26-32 have been rejected under 35 U.S.C. §102(b) as being anticipated by U.S. Patent No. 6,290,770 ("Moreau"). It is alleged in the Office Action of July 14, 2006 at page 3 that Moreau discloses an admixture for cementitious compositions comprising (1) a polycarboxylate dispersant, (2) polyhydroxylalkylamine (specifically tetra(hydroxyethyl)ethylenediamine), and (3) a claimed set retarder (a carboxylic acid salt in Table 1A).

Applicants respectfully traverse this rejection. To establish anticipation of a claim, each and every element as set forth in the claim must be found, either expressly or inherently described, in the single prior art reference. *See Verdegaaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987). The Moreau reference simply does not disclose the use of a *set retarder* in combination with a polycarboxylate dispersant and a strength improvement additive.

The Moreau reference discloses an admixture for a cementitious composition comprising a polycarboxylate dispersant and an accelerator. The disclosure of suitable accelerators is found in the Moreau reference at Column 9, Lines 19 through Column 10, Line 19. Column 9, Lines 33-34 and Table 1A disclose that suitable accelerators include carboxylic acid *salts*, not carboxylic acids. In fact, there is no mention in the Moreau reference of the use of carboxylic acids as set accelerators for cementitious compositions.

The Office Action dated July 14, 2006 specifically refers to the first two columns of Table 1A as teaching all three components. Column 10, Lines 54-64. The table includes, in addition to other additives, (1) a polymer, (2) a polyhydroxylalkylamine, and (3) a carboxylic acid salt. However, carboxylic acid salts are not set retarders. Carboxylic acid salts are accelerators. The present application, as well as Moreau, discloses that carboxylic acid salts of alkali metal, alkaline earth metal, or aluminum are preferred accelerators. Specification Page 24, Lines 12-19; Moreau Column 9, Lines 19-34.

The Final Office Action mailed December 5, 2006 notes that the present application defines set retarding additives as including “hydroxylated carboxylic acids, borax, gluconic, tartaric and other organic acids and their corresponding salts,” and that claim 12 also recites carboxylic acid salts as retarding additives.

Applicants respectfully submit that the inclusion of the phrase “and their corresponding salts” was merely a typographical error, and that one of ordinary skill in the art would recognize the mistake upon reading the description. The description defines carboxylic acid salts as accelerators. Page 24, lines 12-19. “The carboxylic acid salts have the general formula RCOOM wherein R is H or C1 to about C10 alkyl, and M is alkali metal or an alkaline earth metal or aluminum. Preferred are carboxylic acid salts of Na, K, Mg, Ca and Al. A preferred carboxylic acid salt is calcium formate.” Page 25, lines 15-18.

Accordingly, the specification at page 20, line 7 and claims 12 and 26 have been amended to overcome the rejection. The phrase “and their corresponding salts”

has been deleted from the description at page 20, line 7. Amended claims 12 and 26 recite the following:

12. (Currently Amended) The admixture composition of claim 1 wherein the set retarder is selected from the group consisting of an oxy-boron compound, a polyphosphonic acid, lignosulfonates, sulphonic acid-acrylic acid copolymer, and their corresponding salts, carboxylic acid, [a] hydroxycarboxylic acid, polycarboxylic acid, hydroxylated carboxylic acid, fumaric, itaconic, malonic, borax, gluconic, and tartaric acid, lignosulfonates, ascorbic acid, isoascorbic acid, sulphonic acid-acrylic acid copolymer, and their corresponding salts, a carboxylic acid, polyhydroxysilane, polyacrylamide, carbohydrates and mixtures thereof.

26. (Currently Amended) The cementitious composition of claim 15 wherein the set retarder is selected from the group consisting of an oxy-boron compound, a polyphosphonic acid, lignosulfonates, sulphonic acid-acrylic acid copolymer, and their corresponding salts, carboxylic acid, [a] hydroxycarboxylic acid, polycarboxylic acid, hydroxylated carboxylic acid, fumaric, itaconic, malonic, borax, gluconic, and tartaric acid, lignosulfonates, ascorbic acid, isoascorbic acid, sulphonic acid-acrylic acid copolymer, and their corresponding salts, a carboxylic acid, polyhydroxysilane, polyacrylamide, carbohydrates and mixtures thereof.

In view of the above amendments and remarks, Applicants respectfully request withdrawal of the 35 U.S.C. §102(b) rejection over Moreau of claims 1-3, 5-9, 12-17, 19-23 and 26-32.

35 U.S.C. §102(e)

Claims 1-3, 5-9, 12-17, 19-23 and 26-32 have been rejected under 35 U.S.C. §102(e) as being anticipated by U.S. Patent Application No. 2003/0127026 ("Anderson"). The Office Action mailed December 5, 2006 alleges at page 3 that Table A (page 8) of Anderson teaches 20-30% of the polycarboxylate dispersant, 30-50% polyhydroxylalkylamine, and 10-20% of the set retarder. It is alleged that this is

consistent with the presently claimed ranges of 5-80%, 0.5-40% and 0.5-40%, respectively.

Applicants respectfully traverse. The ranges identified in the Office Action (set forth in Table A of Anderson) do not specify the weight percentage of the components in the high early-strength composition of admixtures. The ranges are the “approximate solids content, %” of each individual component, before mixing. “The approximate solids content **is the concentration of the solids in solution** and the primary active ingredient in the component provides the desired effect (i.e., set delay, acceleration, or reduced amount of water) on the cementitious composition.” Anderson, Page 8, Paragraph 155.

Therefore, an approximate solids content of 30-50% for an accelerator means that the accelerator itself contains 30-50% solids in the accelerator solution. An example of a suitable accelerator is POZZOLITH® NC534. Page 7, Paragraph 142. Attached is page 1 of the Material Safety Data Sheet for POZZOLITH® NC534. It is a liquid that may contain 30-60% Calcium Nitrate and 1-5% Sodium Thiocyanate. Therefore, the range of 30-50% set forth in Table A does not identify an admixture containing 30-50% accelerator, but rather, an accelerator containing 30-50% dissolved or dispersed solids.

Therefore, Anderson teaches that the admixture composition is composed of 85-95% accelerator, 5-12% dispersant, and 0-2% retarder **based on solids** (dry) content. Page 8, Paragraph 156.

In contrast to Anderson, the admixture composition as claimed includes about 5 to about 80% polycarboxylate dispersant (Page 5, lines 17-19; Claim 2), about 0.5 to about 40% set retarder (Page 20, lines 9-10; Claim 2), and about 0.5 to about 40% strength improvement additive which may include a polyhydroxyalkylamine (Page 20, lines 26-28; Claim 2) based on the total dry weight of the admixture composition.

Furthermore, Anderson does not teach a strength improvement additive as claimed in the present application.

In Response B mailed September 27, 2006, Claims 1 and 15 were amended to incorporate the ranges of the components recited in dependent claim 2:

1. (Previously Presented) A strength improvement admixture composition comprising:
 - a. polycarboxylate dispersant;
 - b. set retarder; and
 - c. a strength improvement additive selected from the group consisting of poly(hydroxyalkylated)polyethyleneamines, poly(hydroxyalkylated)polyethylenepolyamines, poly(hydroxyalkylated)polyethyleneimines, poly(hydroxyalkylated)polyamines, hydrazines, 1,2-diaminopropane, polyglycoldiamine, poly(hydroxyalkyl)amines and mixtures thereof;wherein the amount of polycarboxylate dispersant is from about 5% to about 80%, the set retarder is from about 0.5% to about 40%, and the strength improvement additive is from about 0.5% to about 40% based on the total dry weight of the admixture composition components.

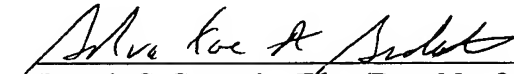
15. (Previously Presented) A cementitious composition comprising hydraulic cement and a strength improvement admixture composition, said admixture composition comprising:
 - a. polycarboxylate dispersant;
 - b. set retarder; and
 - c. a strength improvement additive selected from the group consisting of a poly(hydroxyalkylated)polyethyleneamines, poly(hydroxyalkylated)polyethylenepolyamines, poly(hydroxyalkylated)polyethyleneimines, poly(hydroxyalkylated)polyamines, hydrazines, 1,2-diaminopropane, polyglycoldiamine, poly(hydroxyalkyl)amines and mixtures thereof;wherein the amount of polycarboxylate dispersant is from about 5% to about 80%, the set retarder is from about 0.5% to about 40%, and the strength improvement additive is from about 0.5% to about 40% based on the total dry weight of the admixture composition components.

Applicants, therefore, respectfully request withdrawal of the 35 U.S.C. §102(e) rejection over Anderson of claims 1-3, 5-9, 12-17, 19-23 and 26-32.

In view of the above amendments and remarks, Applicants respectfully request the 35 U.S.C. §102(b) and (e) rejections be withdrawn, and that the Examiner issue a formal notice of allowance directed to claims 1, 3-32.

Should the Examiner have any questions regarding the remarks set forth herein, Applicants' undersigned attorney would welcome a telephone call.

Respectfully submitted,



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Customer No. 23575

Attorney for Applicants

5-7-07

Date

Material Safety Data Sheet



The Chemical Company

POZZOLITH® NC 534 (AKA: CONSET NC)

Version 2.3

06/27/2006

1. PRODUCT AND COMPANY INFORMATION

Company : BASF Corporation
23700 Chagrin Blvd
BEACHWOOD, OH 44122

Telephone : 216-839-7500

Emergency telephone number : (800) 424-9300
(703) 527-3887 (Outside Continental US)

Product name : POZZOLITH® NC 534 (AKA: CONSET NC)

MSDS ID No. : 10033

TSCA Inventory : All components of this product are included, or are exempt from inclusion, in the EPA Toxic Substances Control Act (TSCA) Chemical Substance Inventory.

Canadian DSL : All components of this product are included, or are exempt from inclusion, in the Canadian Domestic Substance List (DSL).

2. HAZARDOUS INGREDIENTS

<u>Chemical</u>	<u>CAS No.</u>	<u>TLV</u>	<u>STEL</u>	<u>PEL</u>	<u>CEIL</u>	<u>Weight %</u>
CALCIUM(II) NITRATE (1:2)	10124-37-5		N.E.	N.E.	N.E.	30.00 - 60.00 %
SODIUM THIOCYANATE	540-72-7	N.E.	N.E.	N.E.	N.E.	1.00 - 5.00 %

3. HAZARDS IDENTIFICATION

HMIS® Rating : HEALTH 2 FLAMMABILITY 0 PHYSICAL HAZARD 0

WHMIS Class : D2B

Primary Routes of Entry : Inhalation
Eye contact
Skin contact

Effects of Overexposure

Inhalation : Vapors can be irritating to respiratory tract and mucous membranes.

Skin : Can cause slight to moderate irritation. Prolonged or repeated skin contact tends to remove skin oils possibly leading to irritation and dermatitis.

Eyes : Can cause slight to moderate transient irritation, redness, tearing and blurred vision.

Ingestion : Intake can cause gastrointestinal irritation and nausea.

Chronic exposure : No known information available.